WHAT IS CLAIMED IS:

1. An alkylated aromatic composition comprising a mixture of:

(a) an alkylated aromatic hydrocarbon alkylation product wherein the alkylation reaction is conducted in the presence of an alkylation catalyst having a macropore structure comprising zeolite Y, and wherein the peak macropore diameter of the catalyst, measured by ASTM Test No. D 4284-03, is less than or equal to about 2000 angstroms and the cumulative pore volume of the catalyst at pore diameters less than or equal to about 500 angstroms, measured by ASTM Test No. D 4284-03, is less than or equal to about 0.30 milliliters per gram; and

(b) an alkylated aromatic hydrocarbon alkylation product wherein the alkylation reaction is conducted in the presence of an alkylation catalyst having a macropore structure comprising mordenite zeolite having a silica to alumina molar ratio of about 50:1 to about 105:1 and wherein the peak macropore diameter of the catalyst, measured by ASTM Test No. D 4284-03, is less than or equal to about 900 angstroms and the cumulative pore volume of the catalyst at pore diameters less than or equal to about 500 angstroms, measured by ASTM Test No. D 4284-03, is less than or equal to about 0.30 milliliters per gram.

2. The alkylated aromatic composition of claim 1 wherein the weight percent of the alkylated aromatic hydrocarbon of (a) in the mixture is in the range of about 40 percent to about 99 percent based on the total alkylated aromatic composition.

3. The alkylated aromatic composition of claim 2 wherein the weight percent of the alkylated aromatic hydrocarbon of (a) in the mixture is in

the range of about 50 percent to about 90 percent based on the total alkylated aromatic composition.

4. The alkylated aromatic composition of claim 3 wherein the weight percent of the alkylated aromatic hydrocarbon of (a) in the mixture is in the range of about 70 percent to about 80 percent based on the total alkylated aromatic composition.

5. The alkylated aromatic composition of claim 1 wherein the alkyl groups of the alkylated aromatic composition are derived from alpha olefins, isomerized olefins, branched-chain olefins, or mixtures thereof.

6. The alkylated aromatic composition of claim 5 wherein the alpha olefins or the isomerized olefins have from about 6 carbon atoms to about 40 carbon atoms.

7. The alkylated aromatic composition of claim 6 wherein the alpha olefins or the isomerized olefins have from about 20 carbon atoms to about 40 carbon atoms.

8. The alkylated aromatic composition of claim 5 wherein the branched-chain olefins have from about 6 carbon atoms to about 70 carbon atoms.

9. The alkylated aromatic composition of claim 8 wherein the branched-chain olefins have from about 8 carbon atoms to about 50 carbon atoms.

10. The alkylated aromatic composition of claim 9 wherein the branched-chain olefins have from about 12 carbon atoms to about 18 carbon atoms.

11. The alkylated aromatic composition of claim 1 wherein the alkyl groups of the alkylated aromatic composition are partially-branched-chain isomerized olefins wherein the olefins have from about 6 carbon atoms to about 40 carbon atoms.

12. The alkylated aromatic composition of claim 11 wherein the partially-branched-chain isomerized olefins have from about 20 carbon atoms to about 40 carbon atoms.

13. The alkylated aromatic composition of claim 1 wherein the aromatic hydrocarbon of the alkylated aromatic composition is toluene or benzene.

14. The alkylation catalysts of claim 1 wherein the zeolite Y in step (a) and the mordenite zeolite in step (b) contain a binder.

15. The alkylation catalysts of claim 1 wherein the binder in the zeolite Y in step (a) and the binder in the mordenite zeolite in step (b) is alumina.

16. The alkylation catalysts of claim 1 wherein the zeolite Y in step (a) and the mordenite zeolite in step (b) are in the form of a tablet.

17. A process for preparing an alkylated aromatic composition comprising:

(a) contacting at least one aromatic hydrocarbon with at least one olefin under alkylation conditions in the presence of a zeolite catalyst having a macropore structure comprising zeolite Y, and wherein the peak macropore diameter of the catalyst, measured by ASTM Test No. D 4284-03, is less than or equal to about 2000 angstroms and the cumulative pore volume of the catalyst at pore diameters less than or equal to about 500 angstroms, measured by ASTM Test No. D 4284-03, is less than or equal to

about 0.30 milliliters per gram to form a first alkylated aromatic hydrocarbon product;

(b) contacting at least one aromatic hydrocarbon with at least one olefin under alkylation conditions in the presence of a zeolite catalyst having a macropore structure comprising mordenite zeolite having a silica to alumina molar ratio of about 50:1 to about 105:1, and wherein the peak macropore diameter of the catalyst, measured by ASTM Test No. D 4284-03, is less than or equal to about 900 angstroms and the cumulative pore volume of the catalyst at pore diameters less than or equal to about 500 angstroms, measured by ASTM Test No. D 4284-03, is less than or equal to about 0.30 milliliters per gram to form a second alkylated aromatic hydrocarbon product; and

(c) combining the first alkylated aromatic hydrocarbon product and the second alkylated aromatic hydrocarbon product to form the alkylated aromatic composition;

wherein steps (a) and (b) can be conducted in any order.

18. The process of claim 17 wherein step (b) further comprises the reactivation of the deactivated zeolite catalyst with an aromatic hydrocarbon flush.

19. The process of claim 18 further comprising sulfonating the alkylated aromatic composition to form an alkylated aromatic sulfonic acid.

20. The process of claim 19 further comprising reacting the alkylated aromatic sulfonic acid with an alkaline earth metal and carbon dioxide to produce a carbonated, overbased alkylated aromatic sulfonate.

21. The process of claim 18 wherein the first alkylated aromatic hydrocarbon product in the alkylated aromatic composition is in the range of about 40 percent to about 99 percent based on the total alkylated aromatic composition.

22. The process of claim 21 wherein the first alkylated aromatic hydrocarbon product in the alkylated aromatic composition is in the range of about 50 percent to about 90 percent based on the total alkylated aromatic composition.

23. The process of claim 22 wherein the first alkylated aromatic hydrocarbon product in the alkylated aromatic composition is in the range of about 70 percent to about 80 percent based on the total alkylated aromatic composition.

24. The process of claim 18 wherein the olefin in step (a) and step (b) is independently an alpha olefin, an isomerized olefin, a branched-chain olefin, or mixtures thereof.

25. The process of claim 24 wherein the alpha olefin or isomerized olefin has from about 6 carbon atoms to about 40 carbon atoms.

26. The process of claim 25 wherein the alpha olefin or isomerized olefin has from about 20 carbon atoms to about 40 carbon atoms.

27. The process of claim 24 wherein the branched-chain olefin has from about 6 carbon atoms to about 70 carbon atoms.

28. The process of claim 27 wherein the branched-chain olefin has from about 8 carbon atoms to about 50 carbon atoms.

29. The process of claim 28 wherein the branched-chain olefin has from about 12 carbon atoms to about 18 carbon atoms.

30. The process of claim 18 wherein the olefin in step (a) or step (b) is independently a partially-branched-chain isomerized olefin, and wherein the olefin has from about 6 carbon atoms to about 40 carbon atoms.

31. The process of claim 30 wherein the partially-branched-chain isomerized olefin has from about 20 carbon atoms to about 40 carbon atoms.

32. The process of claim 18 wherein the aromatic hydrocarbon in step (a) and step (b) is independently toluene or benzene.

33. The process of claim 18 wherein the cumulative pore volume of the zeolite catalysts at pore diameters less than or equal to about 400 angstroms in steps (a) and (b) are less than or equal to about 0.30 milliliters per gram.

34. The process of claim 33 wherein the cumulative pore volume of the zeolite catalysts at pore diameters less than or equal to about 300 angstroms in steps (a) and (b) are less than or equal to about 0.25 milliliters per gram.

35. The process of claim 34 wherein the cumulative pore volume of the zeolite catalysts at pore diameters less than or equal to about 300 angstroms in steps (a) and (b) are less than or equal to about 0.20 milliliters per gram.

36. The process of claim 35 wherein the cumulative pore volume of the zeolite catalysts at pore diameters less than or equal to about 400 angstroms in steps (a) and (b) are in the range of about 0.05 milliliters per gram to about 0.18 milliliters per gram.

37. The process of claim 36 wherein the cumulative pore volume of the zeolite catalysts at pore diameters less than or equal to about 300 angstroms in steps (a) and (b) are in the range of about 0.08 milliliters per gram to about 0.16 milliliters per gram.

38. The process of claim 18 wherein in step (a) the peak macropore diameter of the zeolite Y catalyst is in the range of about 700 angstroms to about 1800 angstroms.

39. The process of claim 38 wherein in step (a) the peak macropore diameter of the zeolite catalyst is in the range of about 750 angstroms to about 1600 angstroms.

40. The process of claim 39 wherein in step (a) the peak macropore diameter of the zeolite catalyst is in the range of about 800 angstroms to about 1400 angstroms.

41. The process of claim 18 wherein in step (b) the peak macropore diameter of the mordenite zeolite catalyst is in the range of about 400 angstroms to about 800 angstroms.

42. The process of claim 41 wherein in step (b) the peak macropore diameter of the mordenite zeolite catalyst is in the range of about 400 angstroms to about 700 angstroms.

43. The process of claim 42 wherein in step (b) the peak macropore diameter of the mordenite zeolite catalyst is in the range of about 450 angstroms to about 600 angstroms.

44. The process of claim 18 wherein in step (a) the zeolite Y catalyst has a silica to alumina ratio of about 5:1 to about 100:1.

45. The process of claim 44 wherein in step (a) the zeolite Y catalyst has a silica to alumina ratio of about 30:1 to about 90:1.

46. The process of claim 45 wherein in step (a) the zeolite Y catalyst has a silica to alumina ratio of about 60:1 to about 80:1.

47. The process of claim 18 wherein in step (b) the mordenite zeolite catalyst has a silica to alumina ratio of about 50:1 to about 105:1.

48. The process of claim 47 wherein in step (b) the mordenite zeolite catalyst has a silica to alumina ratio of about 60:1 to about 80:1.

49. The zeolite catalysts of claim 18 wherein the zeolite Y in step (a) and the mordenite zeolite in step (b) contain a binder.

50. The zeolite catalysts of claim 49 wherein the binder in the zeolite Y in step (a) and the binder in the mordenite zeolite in step (b) is alumina.

51. The zeolite catalysts of claim 18 wherein the zeolite Y in step (a) and the mordenite zeolite in step (b) are in the form of a tablet.

52. A process for preparing an alkylated aromatic composition comprising contacting at least one aromatic hydrocarbon with at least one olefin in the presence of a zeolite catalyst having a macropore structure comprising zeolite Y and mordenite zeolite, wherein the mordenite zeolite has a silica to alumina molar ratio of about 50:1 to about 105:1, and wherein the peak macropore diameter of the catalyst, measured by ASTM Test No. D 4284-03, is less than or equal to about 2000 angstroms and the cumulative pore volume of the catalyst at pore diameters less than or equal to about 500 angstroms, measured by ASTM Test No. D 4284-03, is less than or equal to about 0.30 milliliters per gram.

53. The process of claim 52 wherein the cumulative pore volume of the zeolite catalyst at pore diameters less than or equal to about 400 angstroms is less than or equal to about 0.30 milliliters per gram.

54. The process of claim 53 wherein the cumulative pore volume zeolite catalyst at pore diameters less than or equal to about 300 angstroms is less than or equal to about 0.25 milliliters per gram.

55. The process of claim 54 wherein the cumulative pore volume zeolite catalyst at pore diameters less than or equal to about 300 angstroms is less than or equal to about 0.20 milliliters per gram.

56. The process of claim 55 wherein the cumulative pore volume of the zeolite catalyst at pore diameters less than or equal to about 400 angstroms is in the range of about 0.05 milliliters per gram to about 0.18 milliliters per gram.

57. The process of claim 56 wherein the cumulative pore volume of the zeolite catalyst at pore diameters less than or equal to about 300 angstroms is in the range of about 0.08 milliliters per gram to about 0.16 milliliters per gram.

58. The process of claim 52 wherein the peak macropore diameter of the zeolite catalyst is in the range of about 400 angstroms to about 1500 angstroms.

59. The process of claim 58 wherein the peak macropore diameter of the zeolite catalyst e is in the range of about 500 angstroms to about 1300 angstroms.

60. The process of claim 59 wherein the peak macropore diameter of the zeolite catalyst is in the range of about 600 angstroms to about 1100 angstroms.

61. The process of claim 60 wherein the peak macropore diameter of the zeolite catalyst is in the range of about 750 angstroms to about 900 angstroms.

62. The process of claim 52 wherein the zeolite Y has a silica to alumina molar ratio of about 5:1 to about 100:1 and the mordenite zeolite has a silica to alumina molar ratio of about 50:1 to about 105:1.

63. The process of claim 62 wherein the zeolite Y has a silica to alumina molar ratio of about 30:1 to about 90:1.

64. The process of claim 63 wherein the zeolite Y and the mordenite zeolite independently have a silica to alumina molar ratio of about 60:1 to about 80:1.

65. The zeolite catalyst of claim 52 wherein the zeolite catalyst contains a binder.

66. The zeolite catalyst of claim 65 wherein the binder is alumina.

67. The zeolite catalyst of claim 52 wherein the zeolite catalyst is in the form of a tablet.

68. A zeolite catalyst composition having a macropore structure comprising:

(a) zeolite Y; and

(b) mordenite zeolite having a silica to alumina molar ratio of about 50:1 to about 105:1;

wherein the peak macropore diameter of the catalyst composition, measured by ASTM Test No. D 4284-03, is less than about 2000 angstroms and the cumulative pore volume of the catalyst at pore diameters less than or equal to about 500 angstroms, measured by ASTM Test No. D 4284-03, is less than or equal to about 0.30 milliliters per gram.

69. The zeolite catalyst composition of claim 68 wherein the cumulative pore volume at pore diameters less than or equal to about 400 angstroms is less than or equal to about 0.30 milliliters per gram.

70. The zeolite catalyst composition of claim 69 wherein the cumulative pore volume of the zeolite catalyst composition at pore diameters less than or equal to about 300 angstroms is less than or equal to about 0.25 milliliters per gram.

71. The zeolite catalyst composition of claim 70 wherein the cumulative pore volume of the zeolite catalyst composition at pore diameters less than or equal to about 300 angstroms is less than or equal to about 0.20 milliliters per gram.

72. The zeolite catalyst composition of claim 71 wherein the cumulative pore volume of the zeolite catalyst composition at pore diameters less than or equal to about 400 angstroms is in the range of about 0.05 milliliters per gram to about 0.18 milliliters per gram.

73. The zeolite catalyst composition of claim 72 wherein the cumulative pore volume of the zeolite catalyst composition at pore diameters less than or

equal to about 300 angstroms is in the range of about 0.08 milliliters per gram to about 0.16 milliliters per gram.

74. The zeolite catalyst composition of claim 68 wherein the peak macropore diameter of the zeolite catalyst composition is in the range of about 400 angstroms to about 1500 angstroms.

75. The zeolite catalyst composition of claim 74 wherein the peak macropore diameter of the zeolite catalyst composition is in the range of about 500 angstroms to about 1300 angstroms.

76. The zeolite catalyst composition of claim 75 wherein the peak macropore diameter of the zeolite catalyst composition is in the range of about 600 angstroms to about 1100 angstroms.

77. The zeolite catalyst composition of claim 76 wherein the peak macropore diameter of the zeolite catalyst composition is in the range of about 750 angstroms to about 900 angstroms.

78. The zeolite catalyst composition of claim 68 wherein the zeolite Y in (a) has a silica to alumina molar ratio of about 5:1 to about 100:1.

79. The zeolite catalyst composition of claim 78 wherein the zeolite Y in (a) has a silica to alumina molar ratio of about 30:1 to about 90:1.

80. The zeolite catalyst composition of claim 79 wherein the zeolite Y in (a) has a silica to alumina molar ratio of about 60:1 to about 80:1.

81. The zeolite catalyst composition of claim 68 wherein the mordenite zeolite in (b) has a silica to alumina molar ratio of about 50:1 to about 105:1.

82. The zeolite catalyst composition of claim 81 wherein the mordenite zeolite in (b) has a silica to alumina molar ratio of about 60:1 to about 80:1.

83. The zeolite catalyst composition of claim 68 wherein the zeolite catalyst composition contains a binder.

84. The zeolite catalyst composition of claim 83 wherein the binder is alumina.

85. The zeolite catalyst composition of claim 68 wherein the zeolite catalyst composition is in the form of a tablet.